

What is claimed is:

1 1. A wafer chuck comprising:

2 a. a chuck body having:

3 i. a wafer holding face for holding a wafer;

4 ii. a cavity structurally separated and below said wafer holding face;

5 iii. at least three pin channels extending between said holding face and
6 said cavity substantially perpendicular to said holding face;

7 b. at least three pinlifters correspondingly shaped to and slide ably embedded
8 in said pin channels, each of said pinlifters having a bottom face and a top
9 face;

10 c. a pinlifter assembly embedded in said cavity, said pinlifter assembly
11 having:

12 i. a wedge guide providing an angled movement path that is in an
13 wedge angle with respect to said wafer holding face;

14 ii. a pin actuator correspondingly shaped to said wedge guide and
15 slide ably guided by said wedge guide such that said pin actuator is
16 moved along said movement path as a result of an imposed driving
17 force;

18 iii. a driving means for said imposing of said driving force onto said
19 pin actuator;

20 wherein said bottom faces are in contact with a pin contact face of said pin
21 actuator such that said pinlifters are simultaneously moved along said pin
22 channels and said top faces are moved between a bottom position below said
23 holding face and a top position above said holding face while said pin actuator
24 is moved along said movement path.

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1 2. The wafer chuck of claim 1, wherein said guides are provided by guide
2 structures attached inside said cavity to said chuck body.
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- 1 3. The wafer chuck of claim 1, wherein said guides are integral part of a
2 shape of said cavity.
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- 1 4. The wafer chuck of claim 1, wherein said pin contact face is substantially
2 parallel to said holding face.
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- 1 5. The wafer chuck of claim 1, wherein said pin contact face is angled with
2 respect to said holding face and said wedge angle is substantially zero.
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- 1 6. The wafer chuck of claim 1, wherein said guides are linear such that said
2 movement path is linear.
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- 1 7. The wafer chuck of claim 1, wherein said guides are circular and
2 rotationally symmetric arranged such that said movement path is a
3 rotation.
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- 1 8. The wafer chuck of claim 7, wherein said guides are arranged such
2 that a rotation axis of said movement path substantially
3 coincides with a center axis of said wafer chuck.
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- 1 9. The wafer chuck of claim 1 further comprising a vacuum connect having a
2 vacuum channel for connecting a vacuum across said cavity to a
3 vacuum groove recessed from said wafer holding face.
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- 1 10. The wafer chuck of claim 2, wherein said pin actuator has a cutout
2 such that said pin actuator may be moved between two end
3 positions without interfering with said vacuum connect.
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- 1 11. The wafer chuck of claim 1, wherein said driving means include a
2 motored rotating crank and a connecting rod transmitting a rotating
3 motion of said motored rotating crank onto said pin actuator.

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12. The wafer chuck of claim 4, wherein said driving crank is motored
by a stepper motor.

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13. The wafer chuck of claim 6, wherein said stepper motor has
a rotation axis that is substantially perpendicular to said
wafer holding face.

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14. The wafer chuck of claim 1, wherein said cavity is substantially sealed and
communicating a vacuum substantially unimpeded between a vacuum
channel and a vacuum connect, said vacuum channel connecting said
cavity with a vacuum groove recessed from said wafer holding face,
said vacuum connect extending from a bottom face of said wafer
chuck.

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15. The wafer chuck of claim 1 being part of a rotary stage.

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16. The wafer chuck of claim 15, wherein said cavity is at least
partially provided by said rotary stage.

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17. The wafer chuck of claim 1 being part of a single axis linear stage.

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18. The wafer chuck of claim 17, wherein said cavity is at least
partially provided by said single axis linear stage.

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19. The wafer chuck of claim 1 being part of a dual axis linear stage.

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20. The wafer chuck of claim 19, wherein said cavity is at least
partially provided by said dual axis linear stage.

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21. The wafer chuck of claim 1 being part of a wafer testing device.